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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/017,240      | 12/13/2001  | Yan Hou              | 2207/11505          | 1554             |

26646 7590 05/19/2005

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| EXAMINER |
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DO, CHAT C

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| ART UNIT | PAPER NUMBER |
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2193

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/017,240

Applicant(s)

HOU ET AL.

Examiner

Chat C. Do

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-11 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-11 and 13-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This communication is responsive to Amendment filed 03/28/2005.
2. Claims 1-5, 8-11, and 13-18 are pending in this application. Claims 1, 9, and 14 are independent claims. In Amendment, claims are 6-7 and 12 cancelled; and claims 16-18 are added. This Office Action is made final.

#### *Claim Objections*

3. Claims 8-9 and 15 are objected to because of the following informalities:

The applicant is advised to write the acronym "TRAM" in full for clarification in claims 8-9 and 15.

Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 8-11, and 13-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (U.S. 6,327,602).

Re claim 1, Kim discloses in Figure 6 a system for performing temporal order independent numerical computations on data (e.g. abstract) comprising: a computation block (e.g. 502); a buffer block (e.g. individual registers/buffers in 502 as 608-619), wherein the buffer block includes at least one first buffer (e.g. 610) for storing only data values to which a first mathematical operation performed thereto after being transferred to the computation block is an addition operation by the computation block (e.g. output of 624 is fed directly into 610), and at least one second buffer (e.g. 609) for storing only data values to which a first mathematical operation performed thereto after being transferred to the computation block is a multiplication operation by the computation block (e.g. output of 602 is fed directly into 609); wherein, upon a condition, data values are transferred from the buffer block to the computation block for processing (e.g. 502 generally).

Re claim 2, Kim further discloses in Figure 6 the first and second buffers are FIFO buffers (e.g. 608 and 609 as order).

Re claim 3, Kim further discloses in Figure 6 the computation block computes an IDCT (e.g. abstract lines 1-5 and col. 2 lines 23-39).

Re claim 4, Kim further discloses in Figure 6 eight first buffers are utilized, each corresponding to a column of an 8x8 block of data (e.g. Figure 8a as a frame).

Re claim 5, Kim further discloses in Figure 6 the IDCT is a 2-D DCT (e.g. Figure 3 wherein the second dimension is performed after the transpose process).

Re claim 8, Kim further discloses in Figure 6 the computation block generates a new partial result (e.g. output of 608 as one of the new partial results) utilizing data values transferred from the buffer block (e.g. 609) and the partial result transferred from the TRAM (e.g. 610), the new partial result being then stored back in the TRAM (e.g. feedback storage).

Re claim 9, it has limitations cited in claim 1. Thus, claim 9 is also rejected under the same rationale as cited in claim 9. In addition, Kim further discloses in Figure 6 a TRAM block (e.g. output storage as 608 and 506), wherein the TRAM block stores partial results of the computation between clock cycles (e.g. Figure 7); wherein, upon an occurrence of a predetermined condition, data values are transferred from the buffer block and the TRAM block to the computation block for processing (e.g. feedback storage for next dimension processing).

Re claim 10, it has same limitations cited in claim 3. Thus, claim 10 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 11, it has same limitations cited in claim 4. Thus, claim 11 is also rejected under the same rationale as cited in the rejection of rejected claim 4.

Re claim 13, it has same limitations cited in claim 5. Thus, claim 13 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 14, it is a method of claim 1. Thus, claim 14 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 15, it is a method of claim 8. Thus, claim 15 is also rejected under the same rationale as cited in the rejection of rejected claim 8.

Re claim 16, Kim further discloses in Figure 6 a demultiplexer (e.g. 620) connected upstream from the buffer block (e.g. 609 and 610), for determining whether the first mathematical operation to be performed on each of the data values after being transferred to the computation block is one of the addition operation (e.g. directly mux the value of 610 into 624) and the multiplication operation (e.g. otherwise mux the value of 609 into 624 and feedback the output of previous 624 back to 629).

Re claim 17, it has same limitations cited in claim 16. Thus, claim 17 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

Re claim 18, it is a method of claim 16. Thus, claim 18 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

6. Claims 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Jang et al. (U.S. 5,481,487).

Re claim 14, Jang et al. disclose in Figures 4-5 a method for performing temporal order independent computations (e.g. Figure 4 in time order) comprising: receiving a data value for processing (e.g. X or Z input into 110); determining whether the data value corresponds to one of an addition operation and a multiplication operation (e.g. property of IDCT as cited in col. 1-2 under background of the invention); if the data value corresponds to a multiplication operation, storing the data value in a multiplication buffer (e.g. 141), if the data value corresponds to an addition operation, storing the data value in an addition buffer (e.g. 142), and outputting a data value stored in the multiplication

buffer and an associated data value stored in the addition buffer to a computation block for processing (e.g. 135 or seen in Figure 3).

Re claim 15, Jang et al. further disclose in Figures 4-5 storing partial results generated by the computation block in a TRAM (e.g. 141).

### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-5, 8-11, and 13-18 have been considered but are moot in view of the new ground(s) of rejection.

a. The applicant argues in page 5 last paragraph for claim 14 that the cited reference by Jang et al. does not disclose or suggest the step of determining whether the data value corresponds to one of an addition operation and a multiplication operation" and of storing the data value in an addition buffer or a multiplication buffer depend on such a determination.

The examiner respectfully submits that the cited reference by Jang et al. discloses in Figure 5 multiple STRAM wherein each one of them capable of storing the result or data values after multiplying or adding. Since all STRAMs are connected to the same read and write address counter, the first STRAMs would inherently assign to store the multiplication data value and the second STRAMs would inherently assign to store the addition data value.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do  
Examiner  
Art Unit 2193

May 13, 2005



**TODD INGERBERG**  
**PRIMARY EXAMINER**